



Use the right fluid, in the right aircraft, at the right time!

All six engines and all six IDGs (integrated drive generators) were contaminated.

By ATC(AW) Charles Moore

The excitement of the holidays had faded, and the “Lone Star Express” maintainers of VR-59 had settled back into their normal routine. The past year had been a challenging one for the first squadron to fly the new C-40A Clipper, which was replacing the aging C-9B Skytrain II. I believe we settled too much into that routine.

Even though we had pioneered the transition to a new aircraft, we still completed 24 overseas detachments and hundreds of CONUS and OCONUS airlifts, accumulating more than 5,400 mishap-free flight hours, while hauling 16,288 passengers and 1,830,436 pounds of cargo. To place the crown on this year of model performance, the squadron received the James M. Holcombe Award for maintenance excellence and the Congressman Bill Chappell Award for operational excellence. These awards didn’t keep us from making a serious mistake.

It now was a new year, and 2003 was history. Addressing the night shift at our maintenance-control meeting on a Monday afternoon, I broke the news

of our busy evening. One aircraft was in for phased maintenance, and the other two were scheduled for syllabus-training flights for the squadron’s pilots. In addition, we had a few minor gripes to be worked on after those flights. I was reciting the recovery and launch times, along with fuel loads, to our line division LPO, when one of our young and motivated PCs, AMAN Nathan Farley, sheepishly approached him and whispered something in his ear. Being a maintenance chief, I hate secrets, so I asked what was so important that it couldn’t wait. After a little prodding, I was told a PON-6, oil-servicing unit, which is used to service each of our six-million-dollar CFM-56 turbofan engines, had something in it other than Mobil Jet II, synthetic motor oil. During his preflight inspection, Airman Farley had noticed the fluid was red, instead of the usual orange tint he was used to seeing.

This new development quickly changed the atmosphere in my maintenance department. An aggressive query quickly began to find the source of the bright red MIL-H-83282 hydraulic fluid that mysteriously

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had been used to service the PON-6. We urgently were trying to find the person responsible for this mix-up to see if any aircraft had been serviced, rather than to issue a good, old-fashioned neck choking. The bright red hydraulic fluid could be eating away at the butyl rubber seals on our engines.

Time accelerated as our next launch time approached. The next flight was cancelled because we still had no level of certainty on when the mix-up had occurred or if the wrong fluid had been used. All of our evening flights soon were cancelled, and all three squadron aircraft were now in a down status.

Our only safe course of action was to do corrective maintenance under the worst-case scenario: All six engines and all six IDGs were contaminated.

The maintenance procedures for fluid contamination required us to drain completely all the IDGs and engine-oil tanks, change the filters, and turn the engines for 30 minutes. We then had to repeat the entire process, check the metallic chip indicators, do a leak check, and safety wire everything, again.


We spent 107.4 man-hours doing these tasks and canceled four flights. It took two 55-gallon drums to hold the hazardous waste generated, and the supply system has 12 fewer engine-filter kits, 12 fewer IDG-filter kits, and two fewer barrels of Mobil Jet II to support global-airlift operations.

Days passed slowly, and the source of the hydraulic fluid remained a mystery. The hazmat manager analyzed his program to remove any ambiguity about hazmat storage, identification and issue practices. Maintainers were called to a meeting to brainstorm measures to prevent recurrence. AMAN Farley was recognized as the “Lone Star Safety Pro” for his conscientious preflight that discovered the mix-up and for doing the right thing by notifying maintenance control ASAP.

The person who actually had serviced the PON-6 with hydraulic fluid finally was identified four days after the discovery. One of our selected reservists,

when contacted by phone, readily took responsibility for the problem. He was not aware he had used the wrong fluid. When he went to the hazmat locker to refill the PON-6, the barrel was empty. Right behind it was another can, which was tapped and ready to go. Unfortunately, that barrel contained the MIL-H-83282 hydraulic fluid. The barrels were different colors, but they were in the same locker. He was an experienced PC, who had serviced this unit and many aircraft in the past.

Nailing down the time when the mix-up occurred allowed us to solve the puzzle. We determined only one aircraft had been serviced with the wrong fluid. Luckily, it was the aircraft in for phased maintenance, and those engines had not been run with the hydraulic fluid. Had we not caught this problem, we might have had an engine that could have failed over water, faced premature engine overhaul, or experienced an in-flight fire. I shudder to think how bad it could have been.

Our hazardous materials now are marked conspicuously, and only qualified line-division people are allowed to service our SE. Of course, we found it’s easy for experienced personnel to become complacent doing repetitive and simple maintenance tasks. It’s hard to examine your own actions to prevent errors, but we must try. Our aircraft, maintainers and passengers depend on it. 

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I continue to be amazed at the number of mixed up, oil- and hydraulic-servicing incidents. Read “PON-6 Confusion” in the fall 2003 issue, “Hydraulic Fluid Runs Red” in the winter 2001 issue, and “How Not to Service an Engine” in the Jul-Sep 2001 issue, for a few examples of similar cases. The winter 2001 issue was named, “When Mechs Cause Mishaps.” It included the crash of a helo because the wrong fluid was used. If leaders don’t review procedures, insist on accuracy, and supervise, this problem will happen again, and the outcome could be catastrophic.—Ed.